Amendments to the Claims:

This listing of claims reflects all claim amendments and replaces all prior versions, and listings, of claims in the application. Material to be inserted is in **bold and underline**, and material to be deleted is in ~~strikeout~~ and/or in [[double brackets]] if the deletion would be difficult to see.

LISTING OF CLAIMS:

1. (Currently amended) A system for determining a temperature of exhaust gases from an engine, comprising

an exhaust gas sensor having an electric heating coil, said sensor communicating with the exhaust gases;

an electrical circuit for generating a signal indicative of the resistance of said heating coil[[s]] when said coil is ~~not~~ de-energized; and

a controller receiving said signal and calculating said temperature of said exhaust gases based on said signal, **where the controller generates a duty cycle to successively energize and de-energize said coil, and where the controller calculates said temperature during a plurality of successive de-energized periods of the duty cycle, the heater being operated to heat the sensor when it is below its desired operating temperature**.

2. (Original) The system of claim 1 wherein said electrical circuit comprises a Wheatstone bridge circuit operatively coupled to said exhaust gas sensor.

3. (Currently amended) A method for determining a temperature of exhaust gases from an engine, comprising:

generating a duty cycle to successively energize and de-energize a heating coil in an exhaust gas sensor, the heater being operated to heat the sensor when it is below its desired operating temperature

generating a signal indicative of a resistance of **said** heating coil ~~in an exhaust gas sensor~~ **during a plurality of successive de-energized periods of the duty cycle**~~when said coil is not energized~~; and

calculating a temperature of the exhaust gases based on said signal.

4. (Currently amended) A system for determining a temperature difference of exhaust gases from an engine, the engine being coupled to an emission catalyst, the system comprising:

a first exhaust gas sensor having a first electric heating coil, said first sensor communicating with exhaust gases upstream of the catalyst;

a second exhaust gas sensor having a second electric heating coil, said second sensor communicating exhaust gases downstream of the catalyst;

a first electrical circuit generating a first signal indicative of a resistance of said first heating coil when said first coil is not energized;

a second electrical circuit generating a second signal indicative of the resistance of said second heating coil when said second coil is not energized; and,

a controller calculating a temperature difference between exhaust gases communicating with said first and second exhaust gas sensors based on said first and second signals**, where the controller generates respective duty cycles to successively energize and de-energize said respective coils, and where the controller calculates said temperatures during a plurality of respective successive de-energized periods of the duty cycles**.

5. (Currently amended) A system for determining a temperature difference of exhaust gases form an engine, the engine being coupled to an emission catalyst, the system comprising:

a first exhaust gas sensor having a first electric heating coil, said first sensor communicating with exhaust gases upstream of the catalyst;

a second exhaust gas sensor having a second electric heating coil, said second sensor communicating exhaust gases downstream of the catalyst;

an electrical circuit **coupled to both the first and second electric heating coil, the circuit** generating a first signal based on both a resistance of said first sensor heating coil and a resistance of said second sensor heating coil; and

a controller calculating a temperature difference between exhaust gases communicating with said first and second exhaust gas sensors based on said first signal.

6. (Currently amended) A method for determining oxygen content and at least one exhaust gas temperature of exhaust gas of an internal combustion engine having an exhaust gas system, including a catalytic converter through which the exhaust gas passes, which comprises the steps of:

(a) providing an oxygen sensor disposed in the exhaust gas system, the oxygen sensor having an oxygen-sensitive region for detecting oxygen content in the exhaust gas and a temperature-sensitive region for detecting a temperature of the exhaust gases;

(b) detecting the oxygen content of the exhaust gas;

(c) generating a duty cycle to successively energize and de-energize said temperature-sensitive region

(~~c~~d) detecting a first exhaust gas temperature by determining an electrical conductivity of a conductor structure of the oxygen sensor**, where the first exhaust gas temperature is determined during a plurality of successive de-energized periods of the duty cycle**.

7. (Cancelled).

8. (Currently amended) The method of claim 6 comprising the further step of comparing the first exhaust gas temperature with a second exhaust gas

temperature, **the second temperature at a location in the exhaust gas system different from a location of the first temperature**.

9-11. (Cancelled)

12. (Currently amended) An apparatus for monitoring an exhaust gas catalytic converter arranged in an exhaust pipe of an internal combustion engine, comprising:

an oxygen sensor disposed in the exhaust pipe, the oxygen sensor having an oxygen-sensitive region for detecting oxygen content of the exhaust gas and a temperature-sensitive region for detecting a temperature of the exhaust gas; and

a control unit adapted to receive signals from the oxygen sensor corresponding to a detected exhaust gas **temperature and to generate a duty cycle to successively energize and de-energize said temperature-sensitive region**,

wherein the control unit has at least two modes including a first operating mode for operating the oxygen sensor as a temperature sensor which determines the exhaust gas temperature and a second operating mode for determining the oxygen content of the exhaust gas, **and where the control unit calculates the exhaust gas temperature during a plurality of successive de-energized periods of the duty cycle**.

13. (Previously presented) The apparatus of claim 12 wherein the control unit is further adapted to receive signals from the oxygen sensor corresponding to a detected oxygen content.

14. (Previously presented) The apparatus of claim 12, further comprising:

a second oxygen sensor disposed in the exhaust pipe upstream of the catalytic converter,

wherein the first oxygen sensor is disposed in one of the catalytic converter and the exhaust gas pipe downstream of the catalytic converter.